U.S. Appln. No.: 10/583,851

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the

application:

LISTING OF CLAIMS:

1. (currently amended) A method of determining a rate of dilution of a lubricating

oil by fuel of an internal combustion engine, where either the lubricating oil or the fuel is marked

with a radioactive tracer, the method comprising:

-

- measuring radioactivity of an oil sample using a detector that is sensitive to

radioactive radiation emitted by the radioactive tracer,

transmitting results of the measurements to a computer, and

- the computer calculating the rate of dilution of the lubricating oil by the fuel

based on the results

2. (currently amended) The method according to claim 1, wherein the lubricating

oil contains the radioactive tracer.

3. (currently amended)

The method according to claim 1, wherein the fuel contains

the radioactive tracer.

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Appln. No.: 10/583,851

4. (currently amended) The method according to claim 1, wherein the oil sample

Attorney Docket No.: Q95360

for which the radioactivity is measured is conveyed towards the detector and then re-injected into

an oil system of the internal combustion engine by a deviation.

5. (currently amended) The method according to claim 4, wherein the deviation

takes the oil sample from an area of the oil system of the engine which is under no or low oil

pressure.

6. (currently amended) The method according to claim 1, wherein the radioactive

tracer is an organic or mineral compound of a radioactive element.

7. (currently amended) The method according to claim 6, wherein the radioactive

element has a half-life of less than 3 years.

8. (currently amended) The method according to claim 7, wherein the radioactive

element is selected from the group consisting of $^{22}NA,\,^{65}Zn,\,^{45}Ca,\,^{35}S,\,^{32}P,\,^{47}Ca,\,^{99}Mo,\,^{82}Br,$

⁶⁴Cu, ^{99m}Tc, ²⁸Mg, ⁶⁸Ge, ⁶⁹Ge, ⁷⁷Ge, ⁸⁵Sr and ⁵⁶Co.

U.S. Appln. No.: 10/583,851

9. (currently amended) The method according to claim 8, wherein the radioactive

tracer is selected from tetra-alkyl germaniums containing 69Ge.

10. (currently amended) The method according to claim 1, wherein the detector is

an ionizing radiation detection probe.

11. (currently amended) A system for monitoring a rate of dilution of a lubricating

oil by fuel of an internal combustion engine, the internal combustion engine being lubricated by

a lubricating oil and supplied with an air/fuel mixture, with either the lubricating oil or the fuel

containing a radioactive tracer, the system comprising:

- ,

- means for temporarily sampling and then re-injecting, continuously or

discontinuously, an oil sample from an oil system of the internal combustion engine,

a detector, sensitive to radioactive radiation emitted by the radioactive tracer

present in the oil sample and operable to measure the emitted radioactive radiation, is provided

adjacent to the means for temporary sampling and re-injection of the oil sample, and

a computer, connected to the detector is programmed to calculate, from

measurement results provided by the detector, the rate of dilution of the lubricating oil by the

fuel.

U.S. Appln. No.: 10/583,851

12. (currently amended) The system according to claim 11, wherein the lubricating

oil contains the radioactive tracer.

13. (currently amended) The system according to claim 11, wherein the fuel

contains the radioactive tracer.

14. (currently amended) The system according to claim 11,

wherein the means for temporary sampling and re-injection of the oil sample is a deviation.

15. (currently amended) The system according to claim 11, wherein the means for temporary sampling and re-injection of the oil sample samples and re-injects the oil sample in an area of the oil system of the engine which is under no or low oil pressure.

16. (currently amended) The system according to claim 11, wherein

the radioactive tracer is an organic or mineral compound of a radioactive element.

17. (currently amended) The system according to claim 16, wherein the radioactive element has a half-life of less than 3 years.

- 18. (currently amended) The system according to claim 17, wherein the radioactive element is selected from the group consisting of ²²Na, ⁶⁵Zn, ⁴⁵Ca, ³⁵S, ³²P, ⁴⁷Ca, ⁹⁹Mo, ⁸²Br, ⁶⁴Cu, ⁹⁹mTC. ²⁸Mg, ⁶⁸Ge, ⁶⁹Ge, ⁷⁷Ge, ⁸⁵Sr and ⁵⁶Co.
- 19. (currently amended) The system according to claim 18, wherein the radioactive tracer is selected from tetra-alkyl germaniums containing 60 Ge.
- 20. (currently amended) The system according to claim 11, wherein the detector is an ionizing radiation detection probe.
- 21. (new) The method according to claim 1, wherein the radioactive tracer is an organic compound of a radioactive element.
- 22. (new) The method according to claim 6, wherein the radioactive element has a half-life of less than 1 year.
- 23. (new) The method according to claim 6, wherein the radioactive element has a half-life of less than 30 days.

U.S. Appln. No.: 10/583,851

24. (new) The method according to claim 8, wherein the radioactive tracer is selected

from the group consisting of tetra-hexyl germaniums, tetra-heptyl germaniums and tetra-octyl

germaniums or a mixture thereof.

25. (new) The system according to claim 11, wherein the radioactive tracer is an organic

compound of a radioactive element.

26. (new) The system according to claim 16, wherein the radioactive element has a half-

life of less than 1 year.

27. (new) The system according to claim 16, wherein the radioactive element has a half-

life of less than 30 days.

28. (new) The system according to claim 18, wherein the radioactive tracer is selected

from the group consisting of tetra-hexyl germaniums, tetra-heptyl germaniums and tetra-octyl

germaniums or a mixture thereof.